```
=> d his

     (FILE 'HOME' ENTERED AT 20:31:27 ON 10 JUL 2007)
     FILE 'CA' ENTERED AT 20:32:56 ON 10 JUL 2007
L1  20152 S MESOSTRUC? OR MESOPOR?
L2   2527 S L1(7A) TEMPLAT?
L3   2119 S L1(5A)(FILM OR LAYER? OR SHEET OR MEMBRANE)
L4    423 S L2 AND L3
L5    598 S L1 AND(SENSOR OR SENSING OR DETECTOR OR DETECTING OR ANALY?(2A)
          (ELEMENT OR SHEET OR MEMBRANE OR FILM OR LAYER?))
L6     46 S L4 AND L5
L7     98 S L5 AND NITRO?
L8   1001 S L1(10A)(SOL GEL OR SOLGEL)
L9     61 S L5 AND L8
L10   298 S L2 AND L8
L11    64 S L1 AND POLYMER(4A)(DOP? OR INCORPORAT? OR IMMOBILI? OR
          IMPREGNAT?)
L12    54 S L10 AND NITRO?
L13   283 S L6-7,L9,L11-12
L14   130 S L13 AND PY<2004
L15    32 S L13 AND PATENT/DT
L16   149 S L14-15

=> d bib,ab l16 1-149

L16  ANSWER 15 OF 149  CA  COPYRIGHT 2007 ACS on STN
AN   143:230731  CA
TI   Conjugated polymer-doped nanocomposite silica thin films
IN   Dattelbaum, Andrew M.; Shreve, Andrew P.; Wang, Hsing-Lin
PA   USA
SO   U.S. Pat. Appl. Publ., 10 pp.
PI   US 2005191523        A1    20050901    US 2004-789588         20040227
PRAI US 2004-789588       A     20040227
AB   The present invention discloses a composite structure including an
     inorg. thin film having a defined mesostructure formed in a surfactant
     based formation process including a non-cationic surfactant template
     material (e.g., Brij 56), and, a conjugated polymer (e.g., poly(2,5-
     methoxypropyloxy sulfonate phenylene vinylene)) immobilized within the
     mesostructured inorg. thin film.  A sensor using such a composite
     structure as a responsive element and a method of detecting trace amts.
     of nitro-contg. org. species are also disclosed.

L16  ANSWER 40 OF 149  CA  COPYRIGHT 2007 ACS on STN
AN   139:316085  CA
TI   A possibility of block-copolymer templated mesoporous silica films
     applied to surface photo voltage (SPV) type NOx gas sensor
AU   Yamada, T.; Zhou, H. S.; Uchida, H.; Tomita, M.; Ueno, Y.; Katsube, T.;
     Honma, I.
CS   Energy Electronics Institute, National Institute of Advanced Industrial
     Science and Technology, Tsukuba, Ibaraki, 305-8568, Japan
SO   Studies in Surface Science and Catalysis (2003), 146(Nanotechnology in
     Mesostructured Materials), 783-786
AB   A self-ordered hexagonal and cubic-like mesoporous silica film was
```

successfully fabricated from a Metal-Insulator-Semiconductor device applied to a **Nitrogen** oxides (NOx) gas **sensor** based on the surface photo voltage system. These self-ordered **mesoporous** silica **films** are synthesized by using a nonionic triblock copolymer surfactant as a template in spin coating. The **sensing** characteristics as a NOx gas **sensor** are dependent on both **mesostructures** and exposure gases.

L16 ANSWER 48 OF 149 CA COPYRIGHT 2007 ACS on STN
AN 139:203149 CA
TI Effect of two-step **sol-gel** reaction on the **mesoporous** silica structure
AU Choi, Dae-Geun; Yang, Seung-Man
CS Department of Chemical and Biomolecular Engineering, Korea Advanced Institute of Science and Technology, 373-1 Guseong-dong, Yuseong-gu, Daejeon, 305-701, S. Korea
SO Journal of Colloid and Interface Science (**2003**), 261(1), 127-132
AB The authors studied the effects of two-step sol-gel reaction by abrupt pH change on the SBA-15 and mesocellular SiO2 foams (MCF). **Mesoporous** SiO2 was fabricated by using triblock copolymer **templates** (poly(ethylene oxide) and poly(propylene oxide)). The prepd. SiO2 structure was characterized by x-ray diffraction, TEM, and N2 sorption expt. Specifically, the authors prepd. SBA-15 with long-range two-dimensional hexagonal arrangement of 3 to 6-nm feature spacing and MCF with larger pores of a few tens of nanometers. The pore size and ordering were influenced by pH change in a two-step sol-gel reaction and the concn. of org. solvent. Although well-ordered hexagonal arrangement of mesopores was prevalent in acidic conditions, the materials synthesized by a single-step reaction in neutral or basic conditions possessed gel-like structure without mesopores. However, the present two-step reaction (low pH **sol-gel** reaction followed by high pH reaction) not only produced **mesoporous** materials but also provided controllability of the pore size. In particular, mesoporous structures with pore sizes as large as those of MCF were successfully fabricated by the two-step reaction without using org. swelling agents. As expected, when xylene was added as a swelling agent, the pore size increased with the xylene/copolymer wt. ratio.

L16 ANSWER 72 OF 149 CA COPYRIGHT 2007 ACS on STN
AN 137:271289 CA
TI NO and NO2 gas **sensors** based on surface photovoltage system fabricated by self-ordered **mesoporous** silicate film
AU Zhou, Hao-Shen; Yamada, Takeo; Asai, Keisuke; Honma, Itaru; Uchida, Hidekazu; Katsube, Teruaki
CS Energy Materials Group, Energy Electronics Institute, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, 305-8568, Japan
SO Studies in Surface Science and Catalysis (**2002**), 141(Nanoporous Materials III), 623-630
AB The 1st NO and NO2 gas **sensors** based on surface photo-voltage (SPV) semiconductor device system are fabricated by the metal/ SiO2 (self-ordered hexagonal **mesoporous**)-/Si3N4/SiO2/Si structure. Size controlled silicate hexagonal **mesoporous** film is successfully synthesized by spin coating on a Si3N4/SiO2/Si silicon wafer using poly(ethylene oxide)-poly (propylene oxide)-poly(ethylene oxide) (Pluronic P123 =EO20PO70EO20)

triblock copolymers as a template. The characteristics of **mesoporous** film are studied in XRD, TEM. The **sensing** properties of the self-ordered hexagonal **mesoporous** SPV system were studied by exposing to the NO or NO2 gas and air repeatedly. The changes of the av. value and phase of the a.c. photocurrent (Iph) were obsd. between the NO or NO2 gas and air. The response of the alternatively photocurrent is resulted from the phys. adsorption and chem. interaction between detected NO or NO2 gas and the self-ordered hexagonal **mesoporous** film.

L16 ANSWER 79 OF 149 CA COPYRIGHT 2007 ACS on STN
AN 137:70880 CA
TI Charge transport under illumination in **mesoporous** continuous **films**
AU Garcia-Macedo, Jorge A.; Cruz, Daniel; Valverde, Guadalupe; Zink, Jeffrey I.; Hernandez, Raquel; Minoofar, Payam
CS Instituto de Fisica UNAM, UCLA, Mex.
SO Proceedings of SPIE-The International Society for Optical Engineering (**2002**), 4465(Organic Photovoltaics II), 137-142
AB Recent developments in the prepn. of surfactant-**templated mesostructured sol-gel** silica materials have extended the morphol. from the originally discovered powders, with particle sizes on the order of microns, to **mesoporous** continuous thin **films**. These films could find applications in membrane-based sepns., selective catalysis and **sensors**. Particularly, sodium dodecyl sulfate (SDS)-templated sol-gel films formed by the rapid dip-coating sol-gel method possess highly ordered lamellar phase structure. The interest in the potential applications of these films and the introduction of new properties lead to the research of their chem. modifications. The improvement of their photorefractive response requires knowledge of the microscopic processes, such as the charge transport mechanism. The photocond. technique provides information about that mechanism, and it allows for measuring the transport parameters. **Mesoporous** continuous **films** were prepd. by the dip-coating method on glass substrates. The films were doped with SDS, carbazole (SiK) and dispersed red one (DR1) at 1:20:20 M concn. Photocond. studies were done on them at different illumination wavelengths in order to know the transport mechanism and surfactant influence. The elec. field vs. c.d. plot shows a linear behavior, i.e. an ohmic response. The cond. slope dependence with the polarization time shows a Gaussian behavior. And there is an exponential decay from the absorption coeff. with the accumulated polarization time. Interpretation of these results is presented and the obtained charge transport parameters are reported.

L16 ANSWER 87 OF 149 CA COPYRIGHT 2007 ACS on STN
AN 136:187695 CA
TI Formation of highly ordered mesoporous silica materials adopting lyotropic liquid crystal mesophases
AU El-Safty, S. A.; Evans, J.
CS Chemistry Department, Faculty of Science, Tanta University, Tanta, Egypt
SO Journal of Materials Chemistry (**2002**), 12(1), 117-123
AB Mesoporous silica materials have been synthesized in strongly acidic media at pH = 1.3 using high concns. of a non-ionic surfactant (Brij 76) as a structure-directing agent. Well-defined ordered mesoporous silicas with hexagonal (HI), lamellar (L∞) and solid phase (S) structure have

been prepd. at room temp. according to the lyotropic liq. cryst. mesophases of Brij 76. At high temp. (60 °C), highly ordered cubic (Ia3d), cubic (Im3m) and 3-d hexagonal (p63/mmc) nanostructured materials have been produced. The synthesized materials were studied by powder X-ray diffraction (XRD), the Brunauer-Emmett-Teller (BET) method for **nitrogen** adsorption/desorption isotherms and surface area measurements. TEM and XRD patterns for all materials show well-defined long-range porous architectures. It was found that BET surface area values of the nanostructured materials are reduced upon increasing the temp. of synthesis.

L16 ANSWER 114 OF 149 CA COPYRIGHT 2007 ACS on STN
AN 132:216008 CA
TI Designed molecular recognition materials for chiral **sensors**, separations and catalytic materials
AU Nenoff, Tina M.; Thoma, Steven G.; Provencio, Paula; Jia, Songling; Zhang, Jun; Qiu, Yan; Shelmutt, John A.
CS Catalysis and chemical Technologies Department & New Materials and Validation Department, Sandia National Laboratories, Albuquerque, NM, 87185-0710, USA
SO Sandia National Laboratories [Technical Report] SAND (**1998**), SAND98-2487, 1-28
AB A review with many refs. The goal is the development of materials that are highly sensitive and selective for chiral chems. and biochems. (such as insecticides, herbicides, proteins, and nerve agents) to be used as **sensors**, catalysts and sepns. membranes. Mol. modeling methods are being used to tailor chiral mol. recognition sites with high affinity and selectivity for specified agents. The work focuses on both silicate and nonsilicate materials modified with chirally-pure functional groups for the catalysis or sepns. of enantiomerically-pure mols. Surfactant and quaternary amine templating is being used to synthesize porous frameworks, contg. **mesopores** of 30 to 100 Å. Computer mol. modeling methods are being used in the design of these materials, esp. in the chiral surface-modifying agents. Mol. modeling is also being used to predict the catalytic and sepns. selectivities of the modified **mesoporous** materials. The ability to design and synthesize tailored asym. mol. recognition sites for **sensor** coatings allows a broader range of chems. to be sensed with the desired high sensitivity and selectivity. Initial expts. target the selective **sensing** of small mol. gases and nontoxic model neural compds. Further efforts will address designing **sensors** that greatly extend the variety of resolvable chem. species and forming a predictive, model-based method for developing advanced **sensors**. Thus, the d-glucosamine-**templated** Zn phosphate **layered** phase, **mesoporous** phase and hopeite phase were prepd. and characterized by x-ray diffraction. Chiral zinc porphyrin complexes and their 5-coordinate complexes with (S)-2-pyrrolidinemethanol, pyridine derivs. and piperidine were formed.

L16 ANSWER 142 OF 149 CA COPYRIGHT 2007 ACS on STN
AN 124:163393 CA
TI Glassy spectral gas **sensors** based on the immobilized indicators
AU Novikov, Alexander F.; Zemskii, Vladimir I.
CS Department of Physical Chemistry, Fiber and Integrated Optics, Saint-

Petersburg Institute of Fine Mechanics & Optics, St.Petersburg, 197101, Russia

SO Proceedings of SPIE-The International Society for Optical Engineering (**1995**), 2550, 119-29

AB A no. of color absorption and luminescence indicators being dispersed within a porous matrix has been investigated by means of spectral techniques. As a support for the indicator mols. served a **mesoporous** silica glass of Vycor type (pores size of 7.5 nm) which was transparent to the light and permeable to the ambient gases and vapors. The selected immobilized indicators have revealed the well-defined spectral sensitivity to certain components of an atm. or other gas mixt. After a proper chem. and thermal treatment these indicators have gained high selectivity of spectral response on an individual gas appearing in the ambients, the obsd. spectral changes have demonstrated its reversibility. The indicators immobilized within the porous glass turned out to be mostly advantageous as applied in the colorimetric **sensors** and analyzers, specifically in the automated remote air monitoring systems. Some of the essential parameters of the developed portable individual gas analyzers and remote multi-component monitoring systems with use of fiber optic guides are reported.

=> log y
STN INTERNATIONAL LOGOFF AT 20:50:32 ON 10 JUL 2007